

WHAT IS CLAIMED IS:

1. A method of assembling a plurality of semiconductor chips, comprising the steps of:

5. (a) providing a portion of a semiconductor wafer containing the plurality of chips thereon, each of the plurality of chips having a contact pattern area including a pattern of contacts on a surface of the chip;

10 (b) assembling a respective section of a dielectric interposer to each respective one of the plurality of chips individually, without detaching the plurality of chips from the portion of the semiconductor wafer, each section of interposer having a plurality of  
15 bonding pads near an outer periphery of the section, such that each bonding pad lies near the contact pattern area of the corresponding one of the plurality of chips;

20 (c) wire bonding each bonding pad to a respective one of the contacts on the front surface of the corresponding one of the plurality of chips;

25 (d) applying an encapsulant to encapsulate the wires on each of the plurality of chips; and

(e) cutting the encapsulated chips from the semiconductor wafer.

30 2. A method according to claim 1, wherein step (c) includes bonding one end of each wire to a respective bonding pad using one of the group consisting of micro resistant welding and ultrasonic bonding.

35 3. A method according to claim 1, wherein step (b) includes providing an elastomer between each of

the plurality of chips and the respective interposer on the chip.

4. A method according to claim 1, wherein the portion of the semiconductor wafer includes the whole semiconductor wafer.

5. A method according to claim 1, wherein one end of each wire is bonded to a respective bonding pad of the interposer using ultrasonic bonding, and the other end of each wire is bonded to a respective contact of the chip using ultrasonic bonding.

6. A method according to claim 1, wherein step (c) includes bonding one of the wires that is oriented at an angle substantially less than 90 degrees from any side of the section of interposer having the bonding pad to which the one wire is bonded.

7. A method of assembling a plurality of semiconductor chips, comprising the steps of:

(a) providing a portion of a semiconductor wafer containing the plurality of chips thereon, each of the plurality of chips having a contact pattern area including a pattern of contacts on a surface of the chip;

(b) assembling a sheet including a plurality of interposers to said portion of said semiconductor wafer so that each said interposer is assembled to an associated one of the plurality of chips, without detaching the plurality of chips from the portion of the semiconductor wafer, each said interposer having a plurality of bonding terminals near an outer periphery of the interposer, such that each bonding terminal of each said interposer lies near the contacts of the one of the plurality of chips associated with that interposer;

(c) wire bonding each bonding terminal to a respective one of the contacts on the front surface of the corresponding one of the plurality of chips;

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(d) applying an encapsulant to encapsulate the wires on each of the plurality of chips; and

(e) cutting the encapsulated chips from the semiconductor wafer.

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8. A method according to claim 7, wherein step (c) includes bonding one end of each wire to a respective bonding terminal using ultrasonic bonding.

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9. A method according to claim 7, wherein step (b) includes providing an elastomer between each of the plurality of chips and the interposer associated with that chip.

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10. A method according to claim 7, wherein the portion of the semiconductor wafer includes the whole semiconductor wafer.

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11. A method according to claim 7, wherein one end of each wire is bonded to a respective bonding terminal of the interposer using ultrasonic bonding, and the other end of each wire is bonded to a respective contact of the chip using ultrasonic bonding.

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12. A method according to claim 7, wherein step (c) includes bonding one of the wires that is oriented at an angle substantially less than 90 degrees from any side of the section of interposer having the bonding terminal to which the one wire is bonded.

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13. A method of assembling a plurality of semiconductor chips, comprising the steps of:

5 (a) providing a semiconductor wafer containing the plurality of chips thereon, each of the plurality of chips having a contact pattern area including a pattern of contacts on a surface of the chip;

10 (b) assembling a sheet including a plurality of interposers to said semiconductor wafer so that each said interposer is assembled to an associated one of the plurality of chips, without detaching the plurality of chips from the semiconductor wafer, each said interposer having a plurality of bonding terminals near an outer  
15 periphery of the interposer, such that each bonding terminal of each said interposer lies near the contacts of the one of the plurality of chips associated with that interposer;

20 (c) wire bonding each bonding terminal to a respective one of the contacts on the front surface of the corresponding one of the plurality of chips;

25 (d) applying an encapsulant to encapsulate the wires on each of the plurality of chips; and

(e) cutting the encapsulated chips from the semiconductor wafer.

30 14. A method according to claim 13, wherein step (c) includes bonding one end of each wire to a respective bonding terminal using ultrasonic bonding.

35 15. A method according to claim 13, wherein step (b) includes providing an elastomer between each of

the plurality of chips and the interposer associated with that chip.

5 16. A method according to claim 13, wherein one end of each wire is bonded to a respective bonding terminal of the interpose using ultrasonic bonding, and the other end of each wire is bonded to a respective contact of the chip using ultrasonic bonding.

10 17. A method according to claim 13, wherein step (c) includes bonding one of the wires that is oriented at an angle substantially less than 90 degrees from any side of the section of interposer having the bonding terminal to which the one wire is bonded.

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